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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/551,457

09/30/2005

Masao Suzuki

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02/20/2008

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EXAMINER

RACHUBA, MAURINA T

ART UNIT

PAPER NUMBER

3723

MAIL DATE

DELIVERY MODE

02/20/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/551,457

Applicant(s)

SUZUKI ET AL.

Examiner

Maurina Rachuba

Art Unit

3723

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7 and 9-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7 and 9-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Examiner's Comment

1. A thorough review of applicant's arguments, the specification, pending claims and prior art of record has been done, resulting in the new grounds of rejection below. This action is made non-final to allow applicant fair opportunity to respond.

Claim Rejections - 35 USC § 102

2. Applicant has overcome the previous rejection under 35 USC 102.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 4, 5, 11, 20, 21, 22 and 25 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Jensen, Jr. 4,728,552. '552 discloses a polishing pad comprising a fiber including organic fiber (column 9, lines 7-9; and a matrix resin holding the fiber (column 11, lines 46 through column 12, lines 8), wherein the polishing pad contains an organic fiber in an amount of 1 to 50 wt % (figure 16); at least the organic fiber is exposed on the work material-side surface thereof (figure 8); wherein the matrix resin contains at least one thermoplastic resin (column 11, lines 46 through column 12, lines 8); wherein at least the organic fiber is exposed on the work material-side surface after dressing treatment (column 15, lines 42-46); wherein the matrix resin is a semicrystalline thermoplastic resin (column 11, lines 46 through column 12, lines 8);

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wherein an elastomer is dispersed in the matrix resin (column 11, lines 46 through column 12, lines 8); wherein polishing particles are held by the organic fiber exposed on the work material-side surface (column 14, lines 57 through column 15, lines 7); a method for producing the polishing pad according to claim 1 or 2 for use as attached to a polishing table for flattening a work material's polishing plane, comprising a step of impregnating a fibrous base material containing organic fiber with a matrix resin composition to form a fibrous resin-impregnated sheet-shaped base material and a step of laminating fibrous sheet-shaped base materials including the fibrous resin-impregnated sheet-shaped base material and molding the laminate with heating and pressure (column 14, lines 12 through column 17, lines 15); polishing method for polishing a work material's polishing plane, comprising polishing a work material pressing the polishing plane of the work material to the organic fiber-exposed face of the polishing pad according to claim 1 or 2, and sliding the work material and the pad relatively while supplying a polishing slurry between the work material's polishing plane and the polishing pad; further including a step of exposing the fiber on the surface, column 5, lines 63 through column 6, lines 3 and treatment (column 15, lines 42-46).

Claim Rejections - 35 USC § 103

5. Applicant has overcome the previous rejections under 35 USC 103.
6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 2, 4, 5, 7, 9, 10, 11, 22 and 25 are rejected under 35 U.S.C. 102(a) as being anticipated by Tolles, 6,533,645, or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tolles, 6,533,645 in view of Jensen, Jr. 4,728,552. '645 discloses the claimed invention, including a polishing pad comprising a fiber including organic fiber (column 6, lines 5-10) and a matrix resin (column 6, lines 19-21) holding the fiber, wherein the polishing pad contains an organic fiber in an amount of 1 to 50 wt % (column 6, lines 55-57), at least the organic fiber is exposed on the work material-side surface thereof (see figure 2) and wherein the matrix resin contains at least one thermoplastic resin (column 6, lines 19-21); wherein at least the organic fiber is exposed on the work material-side surface after dressing treatment (column 6, lines 34-37); the matrix resin is a semicrystalline thermoplastic resin (column 6, lines 19-21); an elastomer is dispersed in the matrix resin (column 7, lines 1-3); the fiber is an aromatic polyamide (column 6, lines 5-10); the organic fiber has a diameter of 1 mm or less (column 6, lines 12-15); the organic fiber has a length of 1 cm or less (column 6, lines 12-15); wherein polishing particles are held by the organic fiber exposed on the work material-side surface (note that an abrasive slurry is used during polishing, and the particles are held by the fiber as broadly claimed); polishing method for polishing a work material's polishing plane, comprising polishing a work material pressing the polishing plane of the work material to the organic fiber-exposed face of the polishing pad according to claim 1 or 2, and sliding the work material and the pad relatively while supplying a polishing slurry between the work material's polishing plane and the polishing pad; further including a step of exposing the fiber on the surface (the fiber is

exposed during use of the pad and during conditioning). The examiner considers the phenol resin of '645 to be a thermoplastic or a thermosetting resin, depending on its formulation. If applicant provided evidence that the phenol resin of '645 is not a thermoplastic resin, then '552, (column 11, lines 46 through column 12, lines 8), clearly teaches that it is old and well known to use a thermoplastic resin as a binder for organic fibers in polishing pads. Because both references teach polishing pads, it would have been obvious to one of ordinary skill to have provided '645 with the binder of '552, for the predictable result of binding the fibers, and it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

8. Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Tolles, 6,533,645 or Jensen, Jr. 4,728,552. Neither '645 or '552 disclose that the elastomer has a glass transition point of 0° C or less. It would have been obvious to one of ordinary skill to have provided '645 or '552 with the claimed material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

9. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen, Jr. 4,728,552. '552 discloses the invention of claims 13-15, but does not expressly disclose the invention of claim 12, from which claims 13-15 depend, in that '552 does not disclose that the maximum length of the exposed organic fiber is 0.1 mm or less. It would have been an obvious matter of design choice to have exposed the

fibers to any length desired, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). Here, the length may depend on the overall thickness of the pad, the amount of pad dressing, or the abrasive slurry used.

10. Claims 16-18 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tolles, 6,533,645 in view of Koike et al, 6,544,104. '645 disclose the invention of claim 18, but does not disclose the inventions of claims 16 (from which claim 18 depends) or claim 17, in that '645 does not disclose that the polishing pad is capable of optical detection of the polishing end point during polishing of the work material surface, wherein the polishing pad contains a region transmitting a light having a wavelength in the range of 190 to 3,500 nm. In a similar polishing pad, '104 teaches that it is old and well known to produce a polishing pad that allows the transmission of light in any desired wavelength. It would have been obvious to one of ordinary skill to have provided either '645 with the ability to transmit light in any desired wavelength as taught by '104, column 1, lines 42-50, for the predictable result of efficient on situ monitoring of the polishing process.

11. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tolles, 6,533,645 or Jensen, Jr. 4,728,552 in view of Roberts et al, 6,022,268. Neither '645 or '552 teach the method of manufacturing a polishing pad as set forth in claim 19. '268 teaches that injection molding or extrusion molding of a blended (the materials of the pad must be blended before molding) material that is divided into smaller packets of

material (to be fed into the molding device) is an old and well known method of making polishing pads. It would have been obvious to one of ordinary skill to have provided '645 or '552 with the manufacturing method of '268, for the predictable result of efficiently producing polishing pads.

12. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tolles, 6,533,645. '645 discloses that the claimed pad is used to planarize a substrate having sequential deposits of conductive, semiconductive or insulative layers, column 1, lines 18-20. '645 does not expressly teach the claimed materials forming the layers. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have proved '645 with the claimed materials, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Response to Arguments

13. Applicant's arguments, see pages 6 and 7, filed 30 November 2007, with respect to the rejection(s) under US 2004/0224623 \ have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Tolles, 6,533,645, Jensen, Jr, 4,728,552 and Koike et al, 6,554,104. The filing of the English translations of the foreign priority documents has overcome the rejections based on WO 03/032379. A thorough review of '645, '522 and '104 has resulted in the new rejections under 35

USC 102 and 103 as set forth above. This action is made non-final to allow applicant fair opportunity to respond.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maurina Rachuba whose telephone number is 571 272 4493. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on 571 272 4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. Rachuba/
Primary Examiner, Art Unit 3723